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December 20, 2005

Ex Parte

Marlene H. Dortch
Secretary
Federal Communications Commission
445 12th Street, SW
Washington, DC 20554

Re: In the Matter of Developing a Unified Intercarrier Compensation Regime, CC Docket No. 01-92

Dear Ms. Dortch:

The attached white paper addresses Verizon's views on phantom traffic. Please place this white paper in the record of the docket referenced above.

Sincerely,

Attachment

cc: Michelle Carey
Scott Bergmann
Jessica Rosenworcel
Don Stockdale
Tamara Preiss
Steve Morris

Before the
FEDERAL COMMUNICATIONS COMMISSION
Washington, DC 20554

In the Matter of Developing a Unified Intercarrier Compensation Regime	CC Docket No. 01-92

VERIZON'S PROPOSED REGULATORY ACTION TO ADDRESS PHANTOM TRAFFIC

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May 23, 2005

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VERIZON'S PROPOSED REGULATORY ACTION TO ADDRESS PHANTOM TRAFFIC

Verizon[1] proposes that the Commission take three regulatory steps to address concerns with so-called "phantom traffic": (1) issue new rules governing the call information that carriers must transmit via signaling; (2) facilitate commercial negotiations between carriers, so that carriers may enter into agreements that establish factoring arrangements to approximate the jurisdiction of traffic for billing purposes; and (3) clarify which carriers are responsible for querying the local number portability (LNP) database to ensure efficient routing of traffic and to minimize confusion that can result when traffic is routed in an unexpected manner. Each of these proposals is discussed below.

I. "Phantom Traffic" Affects All Carriers Throughout The Industry

The term "phantom traffic" has been used broadly in this proceeding to include several categories of traffic that are allegedly unbillable or difficult to bill. "Phantom traffic," as it has been used in this proceeding, can be divided into two categories: (1) traffic that a terminating carrier receives, but allegedly cannot bill, because the terminating carrier asserts that it cannot

[1] The Verizon telephone companies ("Verizon") are identified in Appendix B to this proposal.

identify the carrier responsible for payment; and (2) traffic that is difficult to bill because the terminating carrier is unsure of the jurisdiction of the call. Traffic may fall into the second category – traffic for which it is difficult to determine jurisdiction – for a number of underlying reasons. For example, signaling information about the origination of the call may be missing or invalid; signaling information may not reflect the geographic origination of the call; or the call may have been routed differently than the terminating carrier might expect.

Notably, "phantom traffic" affects *all* carriers throughout the telecommunications industry. Larger carriers that own their own tandems, as well as smaller carriers that subtend others' tandems, receive traffic that cannot be jurisdictionalized based on the call origination information contained in signaling or that has been routed in unexpected ways. "Phantom traffic" therefore affects all carriers' abilities to bill for traffic that they terminate to their own end users. In addition, because many tandem providers' transit rates vary according to the jurisdiction of the call, "phantom traffic" affects a carrier's billing even when the carrier is performing only a transiting function. For example, Verizon estimates that approximately 20% of the traffic that either transits over or terminates on Verizon's network either is missing calling party information entirely or contains plainly invalid calling party data in the Signaling System 7 (SS7) stream, affecting Verizon's ability to bill for both termination and transit.

Because "phantom traffic" affects carriers throughout the industry, Verizon's proposed solutions are designed to assist *all* carriers in billing for "phantom traffic." Because the billing difficulties associated with "phantom traffic" are actually the result of a number of different underlying causes, Verizon proposes a multi-pronged approach to address the underlying sources of "phantom traffic." Section II below addresses the first category of "phantom traffic": traffic for which the terminating carrier allegedly cannot identify the carrier responsible for payment.

Sections III and IV then address the second category: traffic for which it may be difficult to determine jurisdiction. Specifically, Section III discusses traffic that has missing, invalid, or inaccurate jurisdictional information, and Section IV discusses traffic that may be routed to the terminating carrier over an unexpected trunk group, which may cause confusion as to proper jurisdiction.

II. Carriers Already Have The Tools To Identify The Carrier Responsible For Payment

The first category of "phantom traffic," as that term has been used in this proceeding, is traffic for which the terminating carrier is purportedly unable to identify the carrier to be billed. The identity of the carrier responsible for payment is the key piece of information in billing any call. As long as the terminating carrier knows which carrier is responsible for payment, other billing questions, such as proper jurisdiction, can and should be addressed by the terminating carrier directly to the financially responsible carrier.

Notably, no regulatory action is needed to provide carriers the tools to identify the carrier responsible for payment. In those cases where the tandem owner is also the terminating carrier, the terminating carrier can determine the carrier responsible for payment by looking to the trunk group over which the call arrived at the tandem, because each incoming trunk is assigned to a particular interconnecting carrier. The same method is also used, for example, when interexchange carriers purchase direct interconnection to a carrier's end office; the terminating carrier can determine the carrier responsible for payment merely by looking to the incoming trunk group. The carrier responsible for payment cannot, however, be determined by looking to the Signaling System 7 (SS7) stream. Pursuant to industry standards, the carrier responsible for payment is not included in signaling. The financially responsible carrier must instead be identified based on the incoming trunk group.

Terminating carriers that terminate traffic that has transited a different carrier's tandem also have the tools needed to identify the carrier responsible for payment. Pursuant to industry standards, the carrier responsible for payment is identified on billing records known as "EMI records" or "terminating access records," which are created by the tandem provider and provided in electronic format to the terminating carrier. Terminating access records contain fields for specific billing information, and the content of these fields is dictated by industry standards that have been incorporated into the design of the switch recording equipment. The fields of the billing records are filled with information that is automatically gleaned and recorded at the tandem switch from a variety of sources, including but not limited to the SS7 signaling stream. Just as it would do for its own terminating traffic, the tandem provider determines the carrier responsible for payment by looking to the trunk group over which the call arrived at the tandem. The tandem provider then populates the terminating access record with a code identifying the carrier to which that trunk is assigned, using either a "carrier identification code" (CIC) if the carrier is an IXC or an "operating company number" (OCN) if the carrier is not an IXC. Terminating access records therefore already provide terminating carriers the tools necessary to determine whom to bill, and regulatory intervention is unnecessary.

II. Limited Regulatory Solutions Are Warranted To Address Traffic Lacking Valid Or Accurate Jurisdictional Information

To be sure, identifying the carrier responsible for payment is only the first step in intercarrier billing – the terminating carrier must then determine the jurisdiction of the traffic in order to know what rate to apply. Thus, the second category of "phantom traffic," as that term has been used in this proceeding, is traffic that may be difficult to bill because the terminating carrier is not sure of the jurisdiction of the call. This can occur when traffic has missing, invalid, or inaccurate jurisdictional information. That some traffic lacks valid jurisdictional information

does not mean that the traffic is unbillable, however. To the contrary, carriers have been dealing with the business issues surrounding this type of so-called "phantom traffic" for decades and have developed a method known as "factoring," which approximates the percentage of traffic that should be designated as local, intrastate access, and interstate access. Although carriers can and should continue to rely on factoring to bill this type of "phantom traffic," there are two steps that the Commission can take to reduce "phantom traffic" and to assist some carriers in establishing factoring agreements. As discussed in more detail below, the Commission should (1) issue traffic labeling rules governing the jurisdictional information that is transmitted in signaling, and (2) confirm that incumbent local exchange carriers (LECs) may compel negotiations with competitive LECs operating in the same local service area.

A. Essential Background On Sources Of Jurisdictional Information And How It Is Shared

In this proceeding, carriers have often discussed two sources of jurisdictional information – SS7 signaling and billing records – interchangeably. It is important, however, to distinguish between the two sources of information, the purposes for which they are used, and how they interrelate. The SS7 signaling stream is an out-of-band signaling system designed primarily for routing calls rather than for billing. Terminating access records, on the other hand, are created by the tandem provider and are designed specifically for billing.[2] The SS7 stream and terminating access records are interrelated, however, in that terminating access records are based in part on information that is pulled from the SS7 stream.

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[2] When the terminating carrier is the same entity as the tandem provider, the tandem provider will generate billing records for internal use that are often in a different format from EMI, but are substantively very similar to the terminating access records that are provided in EMI format to third party terminating carriers. Thus, Verizon uses the term "terminating access records" for ease of reference.

There are two fields in the SS7 stream that have an impact on terminating access records and the jurisdictional information provided to terminating carriers: the calling party telephone number ("CPN") field and the charge number ("CN") field. According to industry standards, the CPN field should be populated by the originating carrier with the calling party's telephone number. By contrast, the CN field does not necessarily need to be populated. The charge number is the calling party's billing number, which may or may not be the same as the CPN. In the case of ordinary residential users, the charge number is often the same as the CPN. On the other hand, a business customer may have a single charge number associated with several different end user telephone numbers. In the case of a call originating from such a business customer, the SS7 signaling stream should contain the specific telephone number originating the call in the CPN field, as well as the charge number in the CN field. If the CPN and CN are the same, however, the originating carrier need not populate the CN field.

In contrast to the SS7 stream itself, terminating access records are designed for billing. In addition to the fields identifying the carrier responsible for payment, the terminating access record contains a single field for the "from" telephone number, which many carriers use to determine the jurisdiction of the call for billing purposes. Pursuant to industry standards, which have been incorporated into the design of most switch recording equipment in the industry, the "from" field in the terminating access record is populated by recording the CPN or CN that appears in the SS7 signaling stream. If only CPN is present in the signaling stream, the CPN is inserted into the terminating access record. However, if both CPN and CN are present in the signaling stream (and they are different), the charge number is used instead.[3]

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[3] *See, e.g.*, Telcordia Tech., *Generic Requirements for Exchange Access Automatic Message Accounting (AMA) (FSD 20-25-0000) (GR-1083 CORE)* at Table 5-2 (Issue 5, Sept.

As a result, although the SS7 stream itself is not designed for use as a billing system, the information in signaling does play a role in billing. Moreover, because terminating access records record the CPN or CN information directly from the SS7 stream, the jurisdictional information in terminating access records is only as good as the signaling information that the tandem provider receives from the previous carrier in the call path. For example, in some cases, the call arrives at the tandem with no CPN or CN in the SS7 signaling stream at all. Other times, the call may arrive at the tandem with a patently invalid CPN and CN in the SS7 stream, such as 999-999-9999. When a tandem provider receives a call with missing or invalid CPN and CN information in the SS7 signaling stream, the terminating access record provided to the terminating carrier will have missing or invalid information as well. Indeed, Verizon estimates that approximately 20% of the traffic that either transits over or terminates on Verizon's network either is missing CPN and CN entirely or contains plainly invalid data in the SS7 stream, affecting Verizon's ability to bill for transit and for termination.

Below, Verizon offers two proposals to assist carriers in determining the jurisdiction of and billing for traffic with missing or invalid CPN and CN. The first proposal – traffic labeling rules – is designed to increase the percentage of traffic containing valid CPN or CN data in signaling, so that those indicators can be captured in billing records. As explained below, however, there will continue to be some level of traffic without CPN or CN in signaling. Thus, Verizon's second proposal is designed to enable carriers to reach commercial agreements as to how to bill such traffic.

2005); Telcordia Tech., *LSSGR: Switching System Generic Requirements for Interexchange Carrier Identification (ICI) Using the Integrated Services Digital Network User Part (ISDNUP) (FR-64) (GR-394-CORE)* at § 3.2.2 (Issue 3, Nov. 1999).

B. Proposed New Rules Governing SS7 Signaling Information

The first step that the Commission should take to address "phantom traffic" is to reduce the amount of traffic lacking certain important call detail information by adopting the traffic labeling rules proposed by Verizon, attached as Appendix A. Reducing the amount of traffic traveling the network without adequate call detail information will assist *all* carriers, including but not limited to those that subtend other carriers' tandems. Verizon's proposed rules incorporate certain basic principles that should be included in any traffic labeling rules the Commission adopts. These principles are necessary in order to ensure that any new rules are effective in improving billing information within the limits of the network's abilities, without requiring carriers to make costly changes to signaling and switch recording equipment that will not improve billing information.

First, because the CPN or CN in billing records is based on information contained in signaling, any rules adopted by the Commission should focus on the underlying source – *signaling* – and should address carriers' responsibilities to signal information appropriately. To be effective, the Commission's rules should address signaling of *both* CPN and CN – not just CPN. This is because terminating access records contain only a single field for a "from" telephone number. If the signaling stream for a call contains both CPN and CN, the CN "trumps" the CPN in terminating access records. Thus, traffic labeling rules that focus only on CPN would leave a loophole for carriers to disguise jurisdiction on billing records by manipulating CN. For example, an originating carrier may faithfully signal CPN, but the originating carrier or a subsequent carrier may insert a *different* CN to disguise jurisdiction –

knowing that the altered CN will be the only number that will appear on billing records.[4] In crafting rules to address CN, however, the Commission should retain current industry practice and should not require carriers to signal CN unless the CPN and CN are different.

Second, the Commission's rules should distinguish between the responsibilities of originating carriers and intermediate carriers. Specifically, only the originating carrier in a call path is able to signal the correct CPN and CN as an initial matter. If the originating carrier fails to populate the CPN and CN fields, subsequent carriers in the call path will have no way of knowing what the CPN and CN should be and therefore cannot correct the originating carrier's omission. Similarly, if an intermediate carrier in the call path removes or alters the CPN and/or CN information that the originating carrier correctly included in the signaling stream, subsequent carriers in the call path have no way of retrieving the original signaling transmitted by the originating carrier. The same result occurs if CPN or CN is not initially signaled, or is lost somewhere in the call path, because the originating carrier or an intermediate carrier employs multi-frequency ("MF") trunks, which do not have SS7 capability. For both of these reasons, intermediate carriers should be held responsible for passing along the signaling information that they receive, to the extent technologically feasible, but should not be held liable if that information was missing or invalid when the call was received.

Third, the Commission's rules should recognize that there are limited circumstances in which existing industry standards permit – even require – intermediate carriers to make some alterations to the CPN and CN data in signaling. Call Forwarding features provide one example. Pursuant to well-established industry standards, when Customer A forwards his phone to another

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[4] *See* Letter from Donna Epps to Marlene Dortch, WC Docket No. 05-68 & CC Docket No. 01-92 (Oct. 7, 2005) (regarding AT&T's prepaid calling card proposal); Letter from Donna Epps to Marlene Dortch, WC Docket No. 05-68 & CC Docket No. 01-92 (Sept. 9, 2005) (same).

number, Customer A's carrier will replace the caller's CN in the signaling stream with Customer A's CN before sending the call on to the forward location. Any rules adopted by the Commission should not require carriers to change these long-standing practices.

Verizon's proposed rules, attached as Appendix A, adhere to these guidelines and would be an effective measure in reducing the "phantom traffic" traversing the network, thus assisting tandem providers and terminating carriers alike. Verizon's proposed rules would eliminate any confusion over when originating carriers must signal CPN and CN and would make clear that intermediate carriers must transmit through signaling the CPN and CN data that they receive, unaltered. Clarifying carriers' responsibilities to signal CPN and CN data in this way will incent carriers to label their traffic properly and thereby reduce the amount of traffic without key jurisdictional information. The Commission should adopt Verizon's proposed traffic labeling rules.

C. Proposed Commission Action To Facilitate Factoring Agreements

Although Verizon's proposed traffic labeling rules will clarify carriers' responsibilities with regard to signaling CPN and CN and will deter carriers from intentionally omitting or altering signaling information, traffic labeling rules will not eliminate all "phantom traffic." Carriers throughout the industry, however, have developed effective methods of approximating the jurisdiction of traffic, known as "factoring," and have used factoring arrangements widely in access tariffs and in commercial agreements. Thus, the second step that the Commission should take to address "phantom traffic" is to facilitate these factoring arrangements by confirming that incumbent carriers can demand commercial negotiations with certain carriers, so that incumbent carriers can use factoring as needed in billing the carriers responsible for payment.

Traffic labeling rules – no matter how well crafted – will not be able to eliminate all traffic that cannot be jurisdictionalized and billed based on CPN or CN. A certain amount of traffic lacking valid CPN and CN information is inevitable in the network. For example, MF trunks are not SS7-capable, such that any traffic other than Feature Group D "equal access" traffic that travels on MF trunks will not contain CPN and CN in signaling, and there will be no CPN or CN for the tandem provider to insert into the terminating access record. The Commission's Caller ID rules also prohibit carriers from passing CPN, or permit carriers to signal a CPN other than the caller's telephone number, in certain limited circumstances. *See* 47 C.F.R. §§ 64.1601(d) & (e). In addition, there are cases where traffic that contains a valid CPN or CN in the signaling stream (which is incorporated into the terminating access record) still cannot be jurisdictionalized based on that information. Calls from "non-geographic" phone numbers, such as wireless roaming calls, provide one such example. Due to roaming, the CPN associated with a wireless customer's handset may or may not indicate the geographic location where a wireless call originated. As a result of all of these factors, terminating carriers will continue to receive traffic that cannot be jurisdictionalized based on the CPN or CN transmitted via signaling and incorporated into billing records.

Such traffic is not "unbillable," however. Rather, carriers throughout the industry routinely bill for such traffic using a long-standing industry method known as "factoring" to approximate the jurisdiction of the traffic received and to determine the rate to apply, both for traffic that terminates on the carrier's own network as well as traffic that merely transits the carrier's network. Typically in factoring arrangements, the carrier responsible for payment (as identified on the terminating access record) uses traffic studies to develop estimates as to what percentage of its traffic to the terminating carrier is local, intrastate toll, or interstate toll. These

percentages, or factors, are commonly referred to in tariffs as "percent local usage (PLU) factors" and "percent interstate usage (PIU) factors."[5] These factors are then used to approximate the jurisdiction of the traffic in question and to calculate the appropriate intercarrier compensation that the financially responsible carrier must pay. For example, Verizon and other carriers often include factoring provisions in contracts and access tariffs to determine the jurisdiction and applicable billing rates for calls that lack a valid CPN or CN. Verizon and other carriers also often agree to use factoring to determine the jurisdiction of *all* wireless-originated calls, because on such calls the CPN will not necessarily reflect the geographic location of the calling party.

Carriers can also use variations on factoring arrangements to increase originating carriers' incentive to signal valid CPN with their traffic. For example, Verizon's interconnection agreements typically apply factoring when jurisdiction cannot be determined by CPN or CN, assuming that such traffic is below a certain threshold – usually 5% or 10%. The agreements provide that Verizon will charge the originating carrier or IXC local, intrastate, and interstate rates in the same proportion as the 90% or 95% of traffic that contained valid CPN. If, however, traffic with missing or invalid CPN exceeds that threshold (again, usually 5% or 10%), the great majority of Verizon's agreements provide that Verizon will charge the originating carrier or IXC the highest possible rate for *all* traffic with missing or invalid CPN.[6]

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[5] *See, e.g.*, Verizon FCC Tariff No. 1 § 2.3.10 (discussing the use of percent interstate usage factors, or PIU factors, to determine the jurisdiction of switched access traffic); National Exchange Carrier Association, Inc. (NECA), FCC Tariff No. 5 §§ 2.3.11, 6.3.1(A) (same).

[6] *See, e.g.*, Ex Parte Letter from Donna Epps to Marlene Dortch, CC Docket No. 01-92 (Aug. 9, 2005) (discussing and providing examples of Verizon's contractual provisions regarding factoring).

Factoring arrangements can provide terminating carriers – including but not limited to small and rural LECS – the tools needed to determine what rate to bill for traffic that may still be difficult or impossible to jurisdictionalize even after Verizon's proposed traffic labeling rules go into effect. As a result, the Commission's second step to address phantom traffic should be to facilitate factoring arrangements by ensuring that terminating carriers have meaningful opportunities to negotiate factoring agreements with the carriers that are responsible for payment. Notably, terminating carriers already have the ability to implement factoring arrangements with the majority of the carriers that are responsible for payment. The Commission need not – and should not – intervene where carriers already have the ability to negotiate or otherwise obtain factoring arrangements.

The carriers responsible for payment to terminating carriers can be grouped into three categories: interexchange carriers; wireless carriers; and other local exchange carriers operating within the same local calling area. With regard to traffic from interexchange carriers, terminating carriers already have the ability to insert factoring provisions in access tariffs, thereby establishing factoring arrangements without negotiating with each individual interexchange carrier. In fact, numerous access tariffs already include factoring provisions, including the National Exhange Carrier Association tariff in which many rural LECs participate.[7] No Commission action is necessary to assist terminating LECs in establishing factoring arrangements with interexchange carriers.

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[7] *See* National Exchange Carrier Association, Inc. (NECA), FCC Tariff No. 5 §§ 2.3.11, 6.3.1(A).

With regard to wireless carriers, the Commission has recently ordered in *T-Mobile*[8] that incumbent LECs may demand negotiations in order to reach commercial agreements with wireless carriers. Incumbent LECs are already taking advantage of their rights under *T-Mobile*, and many are in the process of negotiating commercial agreements with wireless carriers. Incumbent LECs therefore have the ability to seek factoring agreements with wireless carriers as part of their *T-Mobile* negotiations. No further Commission action is needed to assist terminating carriers in establishing factoring arrangements with wireless carriers.

Finally, terminating LECs receive traffic from other LECs operating in the LEC's local calling area. Intercarrier compensation for incumbent LEC to incumbent LEC intraLATA toll traffic has long been addressed through arrangements known as IntraLATA Toll Originating Responsibility Plan or "ITORP," such that factoring arrangements are unnecessary for ILEC to ILEC traffic. Factoring arrangements are essential tools, however, for ILECs terminating traffic from CLECs operating in their local calling area. Yet, some ILECs have argued that they have been unable, as a practical matter, to compel these CLECs to negotiate billing arrangements. The Commission should therefore issue an order similar to its *T-Mobile* order, confirming that ILECs may demand negotiation of billing arrangements from local CLECs, in order to facilitate factoring arrangements.

The Commission's authority to issue such an order is grounded in its power to regulate intercarrier compensation for interstate traffic, explicitly granted by Congress in § 201(b) of the Communications Act. *See* 47 U.S.C. § 201(b). Yet, the complaint that has been raised with regard to "phantom traffic" is that, due to invalid, missing, or non-geographic CPN and CN,

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[8] *See* Memorandum Opinion & Order, *In the Matter of Developing a Unified Intercarrier Compensation Regime; T-Mobile et al. Petition for Declaratory Ruling Regarding Incumbent LEC Wireless Termination Tariffs*, 20 FCC Rcd 4855 (rel. Feb. 24, 2005) ("*T-Mobile*").

carriers are unable to segregate incoming traffic into interstate and intrastate categories for billing purposes. Carriers' inability to identify or reasonably estimate that portion of their traffic that is interstate therefore stands as an obstacle to carriers' ability to receive reasonable and just compensation from other carriers for the interstate traffic that they carry. Thus, pursuant to its authority over intercarrier compensation for interstate traffic, the Commission can take regulatory steps to ensure that carriers are able to identify or approximate that traffic which is subject to the Commission's jurisdiction. A Commission order that facilitates factoring arrangements as a means of estimating which traffic is interstate, by confirming incumbent LECs' ability to demand negotiations, falls squarely within the Commission's authority to regulate intercarrier compensation for interstate traffic. *See* 47 U.S.C. § 201(b). Based on this authority, the Commission should issue an order confirming incumbent LECs' ability to compel negotiation of billing arrangements with competitive LECs operating in the same local calling area.

IV. The Commission Should Minimize The Unexpected Routing Of Traffic By Clarifying Carriers' Responsibilities To Query The Local Number Portability Database

The second category of "phantom traffic" – traffic for which the tandem provider and/or terminating carrier is unsure of jurisdiction – has not been limited in this proceeding to traffic with missing, invalid, or inaccurate CPN or CN. In this proceeding, the term "phantom traffic" has also been used to refer to traffic that is allegedly "misrouted" and delivered to the terminating carrier over a trunk group that seems inconsistent with the jurisdiction indicated by the CPN or CN in signaling and terminating access records. The routing of this traffic causes some terminating carriers to question its proper jurisdiction (as well as its routing). This traffic still appears on terminating access records, however, and can and should be properly billed by

using those billing records. Indeed, much of the claimed "misrouted" traffic is not misrouted at all, but rather the inevitable result of end user choices and non-geographic telephone numbers, as discussed below. Some of this traffic *is* misrouted, however, due to some carriers' failure to ensure efficient routing of traffic by querying the local number portability ("LNP") database. Thus, the third step the Commission should take to address "phantom traffic" is to reduce the amount of traffic that is delivered over unexpected trunks by clarifying carriers' responsibilities to query the LNP database, thereby promoting more efficient use of the network and reducing the confusion that can be caused by misrouting.

Like other "phantom traffic" concerns, concerns about delivery of traffic over the appropriate trunk group affect terminating carriers that subtend their own tandems and that subtend another carrier's tandem. The concerns generally arise when end offices connect to a tandem using two separate trunk groups: one intended primarily for access traffic, and one intended primarily for local interconnection.[9] Despite these designations, traffic that appears (based on CPN) to belong on one trunk group may be delivered by the tandem over the other trunk. However, the type of trunk used by the tandem to complete the call to the terminating carrier is dictated by the type of trunk over which the tandem *receives* the call from the previous carrier in the call path. Contrary to some carriers' assertions, a tandem switch does not – *and cannot* – review the CPN and CN data associated with each call it receives and sort that traffic onto different outgoing trunks according to jurisdiction. It is simply technically infeasible for tandem switches to sort traffic in this manner. Rather, when the tandem receives traffic over an access trunk or a local interconnection trunk, the tandem will complete the call to the terminating

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[9] In some cases, competitive LECs and rural LECs connect to tandems using only a single trunk group that commingles all types of traffic, in which cases there are no concerns about traffic being delivered by the tandem over an unexpected or "wrong" trunk group.

end office over the same type of trunk on which it arrived, regardless of CPN or CN. For this reason, any claimed "misrouting" of traffic into the tandem affects all end offices subtending a tandem – whether the end office belongs to the same carrier or not.

This fact of course raises the question of why traffic may be "misrouted" *to* the tandem over unexpected trunks in the first place. In fact, much of this claimed "misrouting" of traffic is not misrouting at all, but rather the inevitable result of end user choices or non-geographic phone numbers. For example, end users (particularly business end users) may elect to route *all* of their outgoing traffic – including local – directly to an interexchange carrier in order to take advantage of various discount plans. In such a case, the interexchange carrier will deliver that traffic to the tandem over an access trunk. The same routing results if, for example, an individual caller uses a prepaid calling card or dials 10-10-XXX to reach an interexchange carrier when it is unnecessary to do so, perhaps mistakenly believing his call to be beyond the local calling area. Because the tandem receives traffic from interexchange carriers over access trunks, it will forward this traffic to the terminating carrier over access trunks, even if the CPN appears to be located in the local calling area.

Wireless-originated traffic – particularly roaming wireless traffic – provides another example. Wireless calls are routed by the wireless service provider to the tandem over local interconnection trunks, and the tandem will likewise route those calls on to the terminating carrier over local interconnection trunks. But, because a wireless caller's CPN does not necessarily reflect his or her geographic location, particularly if the caller is roaming outside of his or her home calling area, wireless-originated traffic that is properly delivered over local interconnection trunks may appear to be "long distance" based on the caller's CPN or CN.

In all of these examples, however, the traffic is still billable by the terminating carrier. Regardless of the type of trunk on which it is routed, the tandem provider will still create a terminating access record identifying the carrier responsible for payment and recording the CPN or CN that is signaled in the signaling stream. The terminating carrier can properly bill the financially responsible carrier by using these terminating access records, regardless of the trunk on which the traffic is delivered.

In contrast to the examples above, there are cases where the routing of access traffic over local interconnection trunks is both inefficient and avoidable. Specifically, access traffic may be delivered to the terminating carrier over local interconnection trunks if the interexchange carrier failed to query the local number portability (LNP) database before routing the call and the called number has been ported or pooled. An interexchange carrier that fails to perform this query necessarily will route the call based on the assumption that the called number has not been ported or pooled. Because interexchange carriers often have direct connection to many LECs' end offices, the interexchange carrier will most likely deliver the call to the end office where the number originally resided – the "donor" end office. Thus, if the number has been ported or pooled, the call will be delivered to the wrong end office. It will then fall to the donor end office to perform the LNP query and complete the call to the correct end office based on the information in the query response. An end office, however, does *not* have the ability to route the call onward to the recipient end office over access trunks. The only way the donor end office can send the call to the new carrier serving the number is to route the access call over local interconnection trunks.

Notably, traffic misrouted due to an interexchange carrier's failure to perform an LNP query *is billable* by the terminating carrier (the recipient end office). Even in these cases, the

donor end office *still* creates a terminating access record identifying the carrier responsible for payment and recording the CPN and CN information that the donor end office received in signaling. Although this type of traffic is still billable, Commission action is warranted. Interexchange carriers that routinely fail to perform LNP queries cause the inefficient use of network resources, as calls to ported and pooled numbers are forced to travel a circuitous route to their destination. Moreover, these practices are contrary to the network architecture recommended by the NANC and adopted by the Commission in its *Third Report and Order*. *See Third Report & Order* ¶ 15.[10]

Thus, to promote the more efficient use of network resources, as well as to reduce the confusion caused when traffic is delivered to a terminating carrier over an unexpected trunk group, the Commission should issue an order strictly adopting NANC's unequivocal language regarding responsibility for LNP queries:

> [F]or a local call the originating carrier . . . ***is responsible*** for performing the query in its network or contracting with another entity to perform the queries on its behalf.
>
> Similarly, for interLATA toll calls the interexchange carrier . . . ***is responsible*** for performing the necessary query.

See NANC LNP Working Group Recommendation (July 25, 2005) (emphases added). The order should also make clear that when a carrier performs only a transiting function for a call, it is *not* the carrier responsible for querying the LNP database.[11]

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[10] *See* Third Report & Order, *Telephone Number Portability*, 13 FCC Rcd 11701 (1998) ("*Third Report & Order*").

[11] The proper routing of traffic and its role in "phantom traffic" have been debated extensively on the record in this proceeding. In particular, several parties have filed ex partes discussing which carriers are responsible for LNP queries and recommending that the Commission take action in this area. Moreover, the Commission's February 10, 2005 Further Notice of Proposed Rulemaking on intercarrier compensation reform notified the public that as

CONCLUSION

For the reasons discussed above, the Commission should take three steps to address concerns about "phantom traffic:" (1) adopt Verizon's proposed traffic labeling rules, attached as Appendix A; (2) confirm incumbent LECs' ability to compel the negotiation of billing agreements with competitive LECs operating in the same local calling area, in order to facilitate factoring solutions to "phantom traffic;" and (3) clarify which carrier in a call path is responsible for querying the LNP database, in order to promote more efficient use of the network and to reduce confusion caused by the unexpected routing of access traffic over local interconnection trunks.

Respectfully submitted,

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part of its reform efforts, the Commission is considering a broad range of actions that may impact intercarrier compensation. Therefore, consistent with the Administrative Procedure Act (APA), the Commission could issue an order clarifying which carriers are responsible for performing LNP queries.

APPENDIX A

VERIZON'S PROPOSED TRAFFIC LABELING RULES

§ 1. *Definitions*. For purposes of this subsection, the following definitions shall apply:

(a) *Automatic Number Identification* or *ANI*. The term Automatic Number Identification or ANI refers to the NPA (and NXX-line number in the case of ANI II digits) of the Charge Number associated with the party originating a call when multi-frequency ("MF") in-band signaling is used.

(b) *Calling party number* or *CPN*. The term Calling Party Number or CPN refers to the subscriber line number or the directory number associated with the party originating a call. The CPN field is a call data field within the initial address message in the Signaling System 7 network that is populated with the calling party's subscriber line or directory number.

(c) *Charge number* or *CN*. The term Charge Number or CN refers to the telephone number associated with the party to whom a call is charged or billed. In many but not all cases, the CN will be the same as the calling party's CPN. The CN field is a call data field within the initial address message in the Signaling System 7 network that is populated with the CN if the calling party's CPN is not the billing number.

(d) *Intermediate carrier*. The term "intermediate carrier" shall refer to any carrier in the call path that is neither the originating carrier nor the terminating carrier. Intermediate carriers include, but are not limited to, tandem providers, transit providers, and interexchange carriers.

(e) *Multi-Frequency Signaling* or *MF Signaling*. The term MF Signaling refers to an in-band address signaling method that can be used for call routing. In many instances, SS7 signaling has replaced MF signaling.

(f) *Signaling System 7* or *SS7*. The term Signaling System 7 (SS7) refers to a carrier to carrier out-of-band signaling network that can be used for call routing, billing and network management.

§2. *Obligations To Accurately Identify Telecommunications Traffic*.

(a) Where technically feasible, except as provided in 47 C.F.R. §§ 64.1601(d) & (e) and in § (2)(b)(ii) below, originating carriers shall transmit CPN on all calls originated by their end users or the end users of information service providers they serve and shall not alter this information.

(i) For trunk groups with SS7 capability, the CPN should be transmitted in the CPN field of the SS7 stream;

(ii) For trunk groups using MF signaling, on originating feature group D calls, the CPN should be transmitted in the ANI field if CPN and CN are the same.

(b) When the CPN and CN are different, and where technically feasible, originating carriers may transmit the CN on calls originated by their end users or the end users of information service providers they serve and shall not alter this information.

(i) For trunk groups with SS7 capability, CPN should be transmitted in the CPN field and CN should be transmitted in the CN field of the SS7 stream.

(ii) For trunk groups using MF Signaling, on originating feature group D calls, the CN should be sent in the ANI field.

(c) Where technically feasible, intermediate carriers shall transmit the CPN received and the CN received, if any, unaltered, except as provided by industry standards.

APPENDIX B

THE VERIZON TELEPHONE COMPANIES

The Verizon telephone companies are the local exchange carriers affiliated with Verizon Communications Inc. These are:

Contel of the South, Inc. d/b/a Verizon Mid-States
GTE Southwest Incorporated d/b/a Verizon Southwest
Verizon California Inc.
Verizon Delaware Inc.
Verizon Florida Inc.
Verizon Maryland Inc.
Verizon New England Inc.
Verizon New Jersey Inc.
Verizon New York Inc.
Verizon North Inc.
Verizon Northwest Inc.
Verizon Pennsylvania Inc.
Verizon South Inc.
Verizon Virginia Inc.
Verizon Washington, DC Inc.
Verizon West Coast Inc.
Verizon West Virginia Inc.